REMARKS/ARGUMENTS

Favorable consideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-7, 9-15, and 17-22 are pending in this case. Claims 5, 7, 14, 15, and 18 are amended and new Claims 20-22 are added by the present amendment. Amended Claims 5, 7, 14, 15, and 18 and new Claims 20-22 are supported, for example, at least by the original claims and the specification at page 8, lines 12-19 and Figures 2A and 2B, and thus add no new matter.

In the outstanding Office Action, Claims 1-2, 5-6, 10-11, 14, 17, and 18 were rejected under 35 U.S.C. § 102(e) as anticipated by Matsubayashi (U.S. Patent 6,459,419). Claims 3-4, 7, 9, 12-13, 15, and 19 were rejected under 35 U.S.C. §103(a) as unpatentable over Matsubayashi in light of Kanno et al. (U.S. Patent 6,434,266, herein "Kanno").

An interview was held on January 25, 2005 to discuss the present case, attended by Supervisory Patent Examiner Williams, Primary Examiner Wallerson, and Ed Tracy. The applicant would like to thank the Examiners for their time in conducting the interview. Differences between the amended claims and the cited references were discussed in detail. Arguments based on these discussions are presented below.

With regard to the rejection of Claim 1 under 35 U.S.C. §102(e) as anticipated by Matsubayashi, this rejection is respectfully traversed.

Independent Claim 1 recites, "a plane signal conversion unit which generates a plane signal by converting a color space expressed by an input color image signal to ***a plane***."

In contrast, Matsubayashi discloses conversion of image data in the form of individual three dimensional ***points*** from a linear coordinate system (R, G, B) into individual ***points*** in a cylindrical coordinate system (S, L, H) (column 7, line 63 to column 8, line 29). The apparatus determines a color to assign the input image data based on the values of the S, L,

and H coordinates (column 8, line 45 to column 10, line 3). Thus, it is respectfully submitted that there is no teaching to convert an input color image signal to a ***plane.***

For example, the general equation defining a plane in an (x, y, z) coordinate system is:

$ux + vy + wz + t = 0$ with u, v, w, and t are constants and u, v, and w are not all zero. At least three points are required to define a plane uniquely. Thus, it is respectfully submitted that the transformation of individual points in Matsubayashi from one coordinate system to another does not teach or suggest converting an image signal to a plane.

The outstanding Office Action states on page 2, "It is well known that in these color space environments the specific color assigned points as in Figure 5 are based on planes (x-y-z) and the geometrical structure of the output device environment." It is noted that the individual points in Matsubayashi are located in a coordinate system, and the coordinate system contains planes such as x, y, or z planes. However, as stated above, Matsubayashi does not teach or suggest converting the input signal to a plane. At most, Matsubayashi discloses converting an individual point in one coordinate system to an individual point in another coordinate system.

The outstanding Office Action further cites Figure 6 and column 9, lines 15-27 of Matsubayashi as teaching "a plane conversion unit" as recited in Claim 1. However, Figure 6 shows the color of the input data in an (R, G, B) coordinate system, the values of the coordinates of the points in the (R, G, B) system for that input color, the values of the converted points in the (S, L, H) coordinate system, and the resulting color the (S, L, H) points will be displayed as by the apparatus. Thus, the individual points are expressed as ordered triplets before and after conversion. Again, there is no teaching to convert an input color image signal to a plane.

The cited portion of the specification of Matsubayashi (column 9, lines 15-27) discusses the conversion of points from the (R, G, B) system to the (S, L, H) system. Again,

there is no teaching to convert an input color image signal to a ***plane***. Since Matsubayashi does not disclose each and every element of Claim 1, it is respectfully submitted that Claim 1 (and Claims 2-4 dependent therefrom) is patentable over Matsubayashi.

Amended independent Claim 5 recites, "a plane signal conversion unit which converts an image signal expressed on a color space to ***a vector***." A vector includes both a magnitude and a direction. Accordingly, at least two points are needed to define a vector uniquely. Thus, it is respectfully submitted that the transformation of individual points in Matsubayashi from one coordinate system to another does not teach or suggest converting an image signal to a vector.

The outstanding Office Action cites Figure 15 and column 11, lines 26-30 of Matsubayashi as teaching converting an image signal to a vector. However, Figure 15 shows a flow chart including a step S702 for converting individual points in (R, G, B) coordinates to (S, L, H) coordinates. The (S, L, H) coordinate values are then used to determine which color on the color map the input signal should be mapped to (column 11, lines 16-20). Thus, there is no teaching in Matsubayashi to convert an image signal expressed on a color space to ***a vector***. Since Matsubayashi does not disclose each and every element of Claim 5, it is respectfully submitted that Claim 5 (and Claim 6 dependent therefrom) is patentable over Matsubayashi.

Independent Claims 10, 17, 19, and new Claim 20 recite similar elements to Claim 1. It is respectfully submitted that Claims 10, 17, 19, and 20 (and Claims 11-13 dependent therefrom) are patentable over Matsubayashi for at least the reasons discussed above with respect to Claim 1.

Independent Claims 14 and 18 recite similar elements to Claim 5. It is respectfully submitted that Claims 14 and 18 are patentable over Matsubayashi for at least the reasons discussed above with respect to Claim 5.

With regard to the rejection of Claims 7 and 15 under 35 U.S.C. §103(a) as unpatentable over Matsubayashi in light of Kanno, this rejection is respectfully traversed.

Claim 7 recites, "a plane signal conversion unit which converts an image signal expressed on a color space to ***a vector***."

In contrast to Claim 7, Kanno discloses an image processing method and apparatus in which image data in the form of individual three dimensional points from a linear coordinate system (R, G, B) are transformed into individual points in a cylindrical coordinate system (H, S, I) (column 5, lines 54-59). The apparatus then converts the points expressed in (H, S, I) coordinates back to a (R, G, B) coordinate system (column 5, lines 59-65). The (R, G, B) coordinates are converted to a (C, M, Y) coordinate system to correspond to the colors of a printer's toners (column 5, lines 45-51). The (C, M, Y) coordinates are then spatial filtered and then sent to a printer (column 5, lines 51-53). Thus, in a similar manner to Matsubayashi, Kanno only discloses the transformation of individual points from one coordinate system to another coordinate system. Accordingly, it is respectfully submitted that there is no teaching in either reference for a plane signal conversion unit which converts an image signal expressed on a color space to a ***vector***. Since the cited references do not teach or suggest all the elements of Claim 7, it is respectfully submitted that Claim 7 (and Claim 9 dependent therefrom) is patentable over the cited references.

Independent Claim 15 and new independent Claims 21 and 22 recite similar elements to Claim 7. Thus, it is respectfully submitted that Claims 15, 21, and 22 are patentable over the cited references for at least the reasons discussed above with respect to Claim 7.

Accordingly, the outstanding rejections are traversed and the pending claims are believed to be in condition for formal allowance. An early and favorable action to that effect is, therefore, respectfully requested.

Respectfully submitted,

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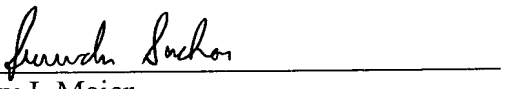

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